

REMARKS

By the present Amendment, minor revisions have been made throughout the specification and the claims have been amended to define certain aspects of the present invention with greater precision. More specifically, claim 1 has been amended to further define the image-receiving layer as [having hydrophilicity and comprising a polymer compound that is chemically bonded directly to the support surface and as having a hydrophilic functional group that is capable of forming chelates together with metal ions and wherein the polymer compound is a hydrophilic functional group-containing straight-chain polymer compound that is]chemically bonded directly to the support surface at its molecular end.¹ *[¹ppp]*

It is evident from the recited structure in amended claim 1 that the polymer compound in the image-receiving layer specifically defines a polymer compound that is chemically bonded directly to the support surface at its molecular end. Such attachment is typically obtained by [treating the support] to obtain an activated surface which can react with a monomer containing a hydrophilic functional group as explained in the specification in the second paragraph on page 13 and in the passage beginning in the middle of Page 14.

The two Tashiro et al. patents relied on in the Official Action, namely U.S. Patent Nos. 5,945, 240 and 5,939,228, do not disclose or suggest the present invention as defined

¹ Claim 1 is in a format which is believed to comply with the Examiner's objection at the top of page 2 of the Action. Furthermore, claim 4 has been amended to revise the dependency thereof in light of the cancellation of claim 2.

in the claims now of record.² Neither of the cited patents describes an image-receiving layer which contains a polymer compound having hydrophilic functional groups capable of forming chelates together with metal ions and is a straight-chain polymer compound that is chemically bonded directly to the support surface at its molecular end. Such a defined structure enables the image-receiving layer to have high water receptivity and great bonding strength to the support so that the lithographic printing plate of the present invention can exhibit high impression capacity while avoiding scumming as set forth in the description provided on pages 52 and 53 of the specification.

Since the claims now of record mark a patentable advance in the art over the teachings of the Tashiro et al. patents, applicant respectfully requests reconsideration and allowance of the present application.

Should the Examiner wish to discuss any aspect of the present application, he is invited to contact the undersigned attorney at the number provided below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: 

Robert G. Mukai
Registration No. 28,531

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

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²The reference to U.S. Patent No. 5,945,240 in section 10 of the Action is believed to be in error and should refer to U.S. Patent No. 5,939,228, based on the subject matter described in the passages of the patent referred to in section 10.

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Mark-up of Specification

Paragraph bridging Pages 13 and 14:

Examples of a hydrophilic functional group-containing monomer especially useful in the invention include monomers respectively containing a carboxyl group, a sulfonic acid group, a phosphonic acid group, an amino group and salts of these groups, such as (meth)acrylic acid or the alkali metal or amine salts thereof, itaconic acid or the alkali metal or amine salts thereof, 2-hydroxyethyl(meth)acrylate, (meth)acrylamide, N-monomethylol(meth)acrylamide, N-dimethylol(meth)acrylamide, allylamine or the hydrohalogenides thereof, 3-vinylpropionic acid or the alkali metal or amine salts thereof, vinylsulfonic acid or the alkali metal or amine salts thereof, vinylstyrenesulfonic acid or the alkali metal or amine salts thereof, 2-sulfoethylene (meth)acrylate and 3-sulfopropylene (meth)acrylate or the alkali metal or amine salts thereof, polyoxyethylene glycol mono(meth)acrylate, [2-acrylamido-2-methylopropanesulfonic]
2-acrylamido-2-methylopropanesulfonic acid or the alkali metal or amine salts, acid phosphoxypolyoxyethylene glycol mono(meth)acrylate, and allylamine or the hydrohalogenides thereof.

Paragraph bridging Pages 20 and 21:

As the solid fine particles, various kinds of materials, such as metal fine particles, metal oxide fine particles and organic or inorganic polymer fine particles, can be utilized. Examples of such fine particles include copper powder, tin powder, iron powder, zinc oxide powder, silicon oxide powder, titanium dioxide powder, aluminum oxide powder, molybdenum disulfide powder, calcium carbonate powder, clay, mica, cone starch, boron

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nitride, silicone resin particles, polystyrene resin particles, [fluoropolymeer] fluoropolymer particles, acrylic resin particles, polyester resin particles, acrylonitrile copolymer resin particles, zinc stearate and calcium behenate. The suitable average size of those fine particles is at least 0.05 (m, preferably at least 0.1 (m. In the case of attaching fine particles to the sheet surface or providing a fine particles-containing layer on the sheet surface, the average size of fine particles is almost equivalent for the roughness of the roughened surface. In the case of incorporating fine particles into a sheet, the roughness depends on the average size of the fine particles and the thickness of the sheet. In the latter case, therefore, it is required for achieving the optimum roughness that the optimum particle size should be determined experimentally depending on the sheet to be combined with the fine particles.

Paragraph bridging Pages 30 and 31:

From the viewpoint of high-quality image formation, it is favorable that the tip of the ink-jet electrode 10b be made as [narrower] narrow as possible.

Paragraph bridging Pages 33 and 34:

As another example of a platemaking method usable in the invention, mention may be made of a method of utilizing a silver complex salt diffusion transfer process for the supply of metal ions. In carrying out this method, a [doner] donor sheet coated with a silver salt photosensitive material is prepared in addition to a direct imaging lithographic printing plate according to the invention. After imagewise exposure, the [doner] donor sheet is subjected to development in the presence of a complexing material capable of

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dissolving silver halide in the unexposed areas. Therein, the exposed areas of the silver salt photosensitive material undergoes chemical development, while the silver halide in the unexposed areas forms a complex together with such a solvent and thereby dissolves (the phenomena caused in exposed and unexposed areas respectively are reversed in a direct-positive photosensitive material). At the time of development, the [doner] donor sheet is brought into face-to-face contact with the direct imaging lithographic printing plate, and thereby silver ions can be transferred from the silver salt photosensitive material onto the image-receiving layer of the direct imaging lithographic printing plate. Simultaneously with the transfer of silver complex ion, the polymer compound constituting the image-receiving layer is cured since it has hydrophilic functional groups capable of forming chelates together with metal ions. Thus, the hardened film is formed in the silver complex ion-transferred areas alone.

Paragraph beginning at Page 40, Line 2:

In a paint shaker (made by Toyo Seiki Seisaku-Sho, Ltd.), 10 g of a copolymer of dodecyl methacrylate and acrylic acid (98/2 by weight), 10 g of Alkali Blue and 30 g of Shellsol 71 were placed together with glass beads, and dispersed for 4 hours. Thus, a blue dispersion containing fine particles of Alkali [blue] Blue was obtained.

Paragraph beginning at Page 47, Line 11:

In a paint shaker (made by Toyo Seiki Seisaku-Sho, Ltd.), 10 g of a copolymer of dodecyl methacrylate and acrylic acid (98/2 by weight), 10 g of Alkali Blue and 30 g of

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Shellsol 71 were placed together with glass beads, and dispersed for 4 hours. Thus, a blue dispersion containing fine particles of Alkali [blue] Blue was obtained.

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Mark-up of Claims

1. (Amended) A direct imaging lithographic printing plate comprising a support and an image-receiving layer provided thereon, said image-receiving layer having hydrophilicity and comprising a polymer compound that is chemically bonded directly to the support surface and has hydrophilic functional groups capable of forming chelates together with metal ions, wherein the polymer compound is a hydrophilic functional group-containing straight-chain polymer compound that is chemically bonded directly to the support surface at its molecular end.

4. (Amended) The direct imaging lithographic printing plate according to claim [2] 1, wherein the hydrophilic functional group capable of forming chelates together with metal ions is selected from the group consisting of carboxylic acid group, a sulfonic acid group, an amino group, a hydroxyl group, and an active methylene group and a salt thereof.